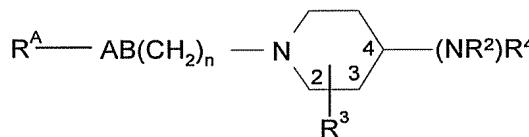


Amendments to the claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-16 (Cancelled).

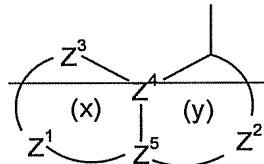
17. (Currently amended) A compound of formula (I) or a pharmaceutically acceptable derivative thereof:



(I)

wherein:

R^A is an optionally substituted bicyclic carbocyclic or heterocyclic ring system selected from quinolin-4-yl, isoquinolin-5-yl, quinolin-8-yl, thieno[3,2-b]pyridin-7-yl, 2,3-dihydro-[1,4]dioxino[2,3-b]pyridin-8-yl, quinoxalin-5-yl, isoquinolin-8-yl, [1,6]-naphthyridin-4-yl, 1,2,3,4-tetrahydroquinoxalin-5-yl or 1,2-dihydroisoquinoline-8-yl of structure:



containing 0-3 heteroatoms in each ring in which:

at least one of rings (x) and (y) is aromatic;

one of Z⁴ and Z⁵ is C or N and the other is C;

Z³ is N, NR¹³, O, S(O)_x, CO, CR¹ or CR¹R^{1a};

Z¹ and Z² are independently a 2- or 3-atom linker group each atom of which is independently selected from N, NR¹³, O, S(O)_x, CO, CR¹ and CR¹R^{1a};

such that wherein each ring is independently C-substituted with 0-3 groups R¹ and/or R^{1a};

one of Z¹, Z², Z³, Z⁴ and Z⁵ is N, one is CR^{1a} and the remainder are CH, or one of Z¹, Z², Z³, Z⁴ and Z⁵ is CR^{1a} and the remainder are CH;

R¹ and R^{1a} are independently hydrogen; hydroxy; (C₁₋₆)alkoxy optionally substituted by (C₁₋₆)alkoxy, amino, piperidyl, guanidino or amidino any of which is optionally N-substituted by one or two (C₁₋₆)alkyl, acyl or (C₁₋₆)alkylsulphonyl

groups, CONH_2 , hydroxy, ($\text{C}_1\text{-6}$)alkylthio, heterocyclithio, heterocyclyoxy, arylthio, aryloxy, acylthio, acyloxy or ($\text{C}_1\text{-6}$)alkylsulphonyloxy; ($\text{C}_1\text{-6}$)alkoxy-substituted($\text{C}_1\text{-6}$)alkyl; hydroxy ($\text{C}_1\text{-6}$)alkyl; halogen; ($\text{C}_1\text{-6}$)alkyl; ($\text{C}_1\text{-6}$)alkylthio; trifluoromethyl; trifluoromethoxy; cyano; carboxy; nitro; azido; acyl; acyloxy; acylthio; ($\text{C}_1\text{-6}$)alkylsulphonyl; ($\text{C}_1\text{-6}$)alkylsulphoxide; arylsulphonyl; arylsulphoxide or an amino, piperidyl, guanidino or amidino group optionally N-substituted by one or two ($\text{C}_1\text{-6}$)alkyl, acyl or ($\text{C}_1\text{-6}$)alkylsulphonyl groups, or when Z^3 and the adjacent atom are CR^1 and CR^{1a} , R^1 and R^{1a} may together represent ($\text{C}_1\text{-2}$)alkylenedioxy; provided that R^1 and R^{1a} , on the same carbon atom are not both optionally substituted hydroxy or amino;

provided that

(i) when R^A is optionally substituted quinolin-4-yl:

it is unsubstituted in the 6-position; or

it is substituted by at least one hydroxy ($\text{C}_1\text{-6}$)alkyl, cyano or carboxy group at the 2-, 5-, 6-, 7- or 8-position; or

it is substituted by at least one trifluoromethoxy group; or

R^1 and R^{1a} together represent ($\text{C}_1\text{-2}$)alkylenedioxy;

(ii) when R^A is optionally substituted quinazolin-4-yl, cinnolin-4-yl, 1,5-naphthyridin-4-yl, 1,7-naphthyridin-4-yl or 1,8-naphthyridin-4-yl:

it is substituted by at least one hydroxy ($\text{C}_1\text{-6}$)alkyl, cyano or carboxy group at the 2-, 5-, 6-, 7- or 8-position as available; or

it is substituted by at least one trifluoromethoxy group; or

R^1 and R^{1a} together represent ($\text{C}_1\text{-2}$)alkylenedioxy;

R^2 is hydrogen, or ($\text{C}_1\text{-4}$)alkyl or ($\text{C}_2\text{-4}$)alkenyl optionally substituted with 1 to 3 groups selected from:

amino optionally substituted by one or two ($\text{C}_1\text{-4}$)alkyl groups; carboxy; ($\text{C}_1\text{-4}$)alkoxycarbonyl; ($\text{C}_1\text{-4}$)alkylcarbonyl; ($\text{C}_2\text{-4}$)alkenylloxycarbonyl; ($\text{C}_2\text{-4}$)alkenylcarbonyl; aminocarbonyl wherein the amino group is optionally substituted by hydroxy, ($\text{C}_1\text{-4}$)alkyl, hydroxy($\text{C}_1\text{-4}$)alkyl, aminocarbonyl($\text{C}_1\text{-4}$)alkyl, ($\text{C}_2\text{-4}$)alkenyl, ($\text{C}_1\text{-4}$)alkylsulphonyl, trifluoromethylsulphonyl, ($\text{C}_2\text{-4}$)alkenylsulphonyl, ($\text{C}_1\text{-4}$)alkoxycarbonyl, ($\text{C}_1\text{-4}$)alkylcarbonyl, ($\text{C}_2\text{-4}$)alkenylloxycarbonyl or ($\text{C}_2\text{-4}$)alkenylcarbonyl; cyano; tetrazolyl; 2-oxo-oxazolidinyl optionally substituted by R^{10} ; 3-hydroxy-3-cyclobutene-1,2-dione-4-yl; 2,4-thiazolidinedione-5-yl; tetrazol-5-ylaminocarbonyl; 1,2,4-triazol-5-yl optionally substituted by R^{10} ; 5-oxo-1,2,4-oxadiazol-3-yl; halogen; ($\text{C}_1\text{-4}$)alkylthio; trifluoromethyl; hydroxy optionally substituted by ($\text{C}_1\text{-4}$)alkyl, ($\text{C}_2\text{-4}$)alkenyl, ($\text{C}_1\text{-4}$)alkoxycarbonyl, ($\text{C}_1\text{-4}$)alkylcarbonyl,

(C₂-4)alkenyloxycarbonyl, (C₂-4)alkenylcarbonyl; oxo; (C₁-4)alkylsulphonyl; (C₂-4)alkenylsulphonyl; or (C₁-4)aminosulphonyl wherein the amino group is optionally substituted by (C₁-4)alkyl or (C₂-4)alkenyl;

R³ is hydrogen; or

R³ is in the 2-, 3- or 4-position and is:

trifluoromethyl; carboxy; (C₁-6)alkoxycarbonyl; (C₂-6)alkenyloxycarbonyl; aminocarbonyl wherein the amino group is optionally substituted by hydroxy, (C₁-6)alkyl, hydroxy(C₁-6)alkyl, aminocarbonyl(C₁-6)alkyl, (C₂-6)alkenyl, (C₁-6)alkylsulphonyl, trifluoromethylsulphonyl, (C₂-6)alkenylsulphonyl, (C₁-6)alkoxycarbonyl, (C₁-6)alkylcarbonyl, (C₂-6)alkenyloxycarbonyl or (C₂-6)alkenylcarbonyl and optionally further substituted by (C₁-6)alkyl, hydroxy(C₁-6)alkyl, aminocarbonyl(C₁-6)alkyl or (C₂-6)alkenyl; cyano; tetrazolyl; 2-oxo-oxazolidinyl optionally substituted by R¹⁰; 3-hydroxy-3-cyclobutene-1,2-dione-4-yl; 2,4-thiazolidinedione-5-yl; tetrazol-5-ylaminocarbonyl; 1,2,4-triazol-5-yl optionally substituted by R¹⁰; or 5-oxo-1,2,4-oxadiazol-3-yl; or (C₁-4)alkyl or ethenyl optionally substituted with any of the substituents listed above for R³ and/or 0 to 2 groups R¹² independently selected from:

halogen; (C₁-6)alkylthio; trifluoromethyl; (C₁-6)alkoxycarbonyl; (C₁-6)alkylcarbonyl; (C₂-6)alkenyloxycarbonyl; (C₂-6)alkenylcarbonyl; hydroxy optionally substituted by (C₁-6)alkyl, (C₂-6)alkenyl, (C₁-6)alkoxycarbonyl, (C₁-6)alkylcarbonyl, (C₂-6)alkenyloxycarbonyl, (C₂-6)alkenylcarbonyl or aminocarbonyl wherein the amino group is optionally substituted by (C₁-6)alkyl, (C₂-6)alkenyl, (C₁-6)alkylcarbonyl or (C₂-6)alkenylcarbonyl; amino optionally mono- or disubstituted by (C₁-6)alkoxycarbonyl, (C₁-6)alkylcarbonyl, (C₂-6)alkenyloxycarbonyl, (C₂-6)alkenylcarbonyl, (C₁-6)alkyl, (C₂-6)alkenyl, (C₁-6)alkylsulphonyl, (C₂-6)alkenylsulphonyl or aminocarbonyl wherein the amino group is optionally substituted by (C₁-6)alkyl or (C₂-6)alkenyl; aminocarbonyl wherein the amino group is optionally substituted by (C₁-6)alkyl, hydroxy(C₁-6)alkyl, aminocarbonyl(C₁-6)alkyl, (C₂-6)alkenyl, (C₁-6)alkoxycarbonyl, (C₁-6)alkylcarbonyl, (C₂-6)alkenyloxycarbonyl or (C₂-6)alkenylcarbonyl and optionally further substituted by (C₁-6)alkyl, hydroxy(C₁-6)alkyl, aminocarbonyl(C₁-6)alkyl or (C₂-6)alkenyl; oxo; (C₁-6)alkylsulphonyl; (C₂-6)alkenylsulphonyl; or (C₁-6)aminosulphonyl wherein the amino group is optionally substituted by (C₁-6)alkyl or (C₂-6)alkenyl; or

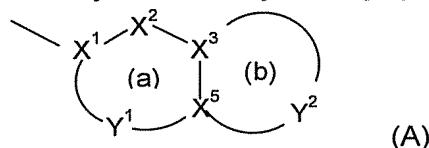
R³ is in the 2-position and is oxo; or

R^3 is in the 3-position and is fluorine, amino optionally substituted by a group selected from hydroxy, (C_{1-6})alkylsulphonyl, trifluoromethylsulphonyl, (C_{2-6})alkenylsulphonyl, (C_{1-6})alkylcarbonyl, (C_{2-6})alkenylcarbonyl, (C_{1-6})alkoxycarbonyl, (C_{2-6})alkenyloxycarbonyl, (C_{1-6})alkyl and (C_{2-6})alkenyl, wherein a (C_{1-6})alkyl or (C_{2-6})alkenyl moiety may be optionally substituted with up to 2 groups R^{12} , or hydroxy optionally substituted as described above for R^{12} hydroxy; in addition when R^3 is disubstituted with a hydroxy or amino containing substituent and carboxy containing substituent these may together form a cyclic ester or amide linkage, respectively;

R^4 is a group -U- R^5 where

U is selected from CO, SO_2 and CH_2 and

R^5 is an optionally substituted bicyclic heterocyclic ring system (A):



wherein:

X^3 and X^5 are C;

ring (a) is optionally substituted pyrido in which X^1 is C, X^2 is N, and Y^1 is a 2 atom linker group each atom of which is independently selected from CR^{14} ; and

ring (b) is non-aromatic, Y^2 is a 4 atom linker group wherein $S(O)_x$ is bonded to X^5 , NR^{13} is bonded via N to X^3 and the other atoms are independently selected from $CR^{14}R^{15}$;

each of R^{14} and R^{15} is independently selected from: H; (C_{1-4})alkylthio; halo; carboxy(C_{1-4})alkyl; halo(C_{1-4})alkoxy; halo(C_{1-4})alkyl; (C_{1-4})alkyl; (C_{2-4})alkenyl; (C_{1-4})alkoxycarbonyl; formyl; (C_{1-4})alkylcarbonyl; (C_{2-4})alkenyloxycarbonyl; (C_{2-4})alkenylcarbonyl; (C_{1-4})alkylcarbonyloxy; (C_{1-4})alkoxycarbonyl(C_{1-4})alkyl; hydroxy; hydroxy(C_{1-4})alkyl; mercapto(C_{1-4})alkyl; (C_{1-4})alkoxy; nitro; cyano; carboxy; amino or aminocarbonyl optionally substituted as for corresponding substituents in R^3 ; (C_{1-4})alkylsulphonyl; (C_{2-4})alkenylsulphonyl; or aminosulphonyl wherein the amino group is optionally mono- or di-substituted by (C_{1-4})alkyl or (C_{2-4})alkenyl; aryl; aryl(C_{1-4})alkyl; aryl(C_{1-4})alkoxy or

R^{14} and R^{15} may together represent oxo;

each R^{13} is independently H; trifluoromethyl; (C_{1-4})alkyl optionally substituted by hydroxy, (C_{1-6})alkoxy, (C_{1-6})alkylthio, halo or trifluoromethyl; (C_{2-4})alkenyl; aryl; aryl (C_{1-4})alkyl; arylcarbonyl; heteroarylcarbonyl; (C_{1-4})alkoxycarbonyl; (C_{1-4})alkylcarbonyl; formyl; (C_{1-6})alkylsulphonyl; or

aminocarbonyl wherein the amino group is optionally substituted by (C₁-4)alkoxycarbonyl, (C₁-4)alkylcarbonyl, (C₂-4)alkenyloxycarbonyl, (C₂-4)alkenylcarbonyl, (C₁-4)alkyl or (C₂-4)alkenyl and optionally further substituted by (C₁-4)alkyl or (C₂-4)alkenyl;

each x is independently 0, 1 or 2;

n is 0 and AB is NR¹¹CO, CO-CR⁸R⁹, CR⁶R⁷-CO, NHR¹¹SO₂, CR⁶R⁷-SO₂ or CR⁶R⁷-CR⁸R⁹, provided that R⁸ and R⁹ are not optionally substituted hydroxy or amino and R⁶ and R⁸ do not represent a bond; or n is 1 and AB is NR¹¹CO, CO-CR⁸R⁹, CR⁶R⁷-CO, NR¹¹SO₂, CONR¹¹, CR⁶R⁷-CR⁸R⁹, O-CR⁸R⁹ or NR¹¹-CR⁸R⁹;

provided that R⁶ and R⁷, and R⁸ and R⁹ are not both optionally substituted hydroxy or amino;

and wherein:

each of R⁶, R⁷, R⁸ and R⁹ is independently selected from: H; (C₁-6)alkoxy; (C₁-6)alkylthio; halo; trifluoromethyl; azido; (C₁-6)alkyl; (C₂-6)alkenyl; (C₁-6)alkoxycarbonyl; (C₁-6)alkylcarbonyl; (C₂-6)alkenyloxycarbonyl; (C₂-6)alkenylcarbonyl; hydroxy, amino or aminocarbonyl optionally substituted as for corresponding substituents in R³; (C₁-6)alkylsulphonyl; (C₂-6)alkenylsulphonyl; or (C₁-6)aminosulphonyl wherein the amino group is optionally substituted by (C₁-6)alkyl or (C₂-6)alkenyl;

or R⁶ and R⁸ together represent a bond and R⁷ and R⁹ are as above defined;

R¹⁰ is selected from (C₁-4)alkyl; (C₂-4)alkenyl and aryl any of which may be optionally substituted by a group R¹² as defined above; carboxy; aminocarbonyl wherein the amino group is optionally substituted by hydroxy, (C₁-6)alkyl, (C₂-6)alkenyl, (C₁-6)alkylsulphonyl, trifluoromethylsulphonyl, (C₂-6)alkenylsulphonyl, (C₁-6)alkoxycarbonyl, (C₁-6)alkylcarbonyl, (C₂-6)alkenyloxycarbonyl or (C₂-6)alkenylcarbonyl and optionally further substituted by (C₁-6)alkyl or (C₂-6)alkenyl; and

R¹¹ is hydrogen; trifluoromethyl, (C₁-6)alkyl; (C₂-6)alkenyl; (C₁-6)alkoxycarbonyl; (C₁-6)alkylcarbonyl; or aminocarbonyl wherein the amino group is optionally substituted by (C₁-6)alkoxycarbonyl, (C₁-6)alkylcarbonyl, (C₂-6)alkenyloxycarbonyl, (C₂-6)alkenylcarbonyl, (C₁-6)alkyl or (C₂-6)alkenyl and optionally further substituted by (C₁-6)alkyl or (C₂-6)alkenyl;

or where one of R³ and R⁶, R⁷, R⁸ or R⁹ contains a carboxy group and the other contains a hydroxy or amino group they may together form a cyclic ester or amide linkage.

18. (Previously presented) A compound according to claim 17 wherein R^A is optionally substituted isoquinolin-5-yl, quinolin-8-yl, thieno[3,2-b]pyridin-7-yl, 2,3-dihydro-[1,4]dioxino[2,3-b]pyridin-8-yl, quinoxalin-5-yl, isoquinolin-8-yl, [1,6]-naphthyridin-4-yl, 1,2,3,4-tetrahydroquinoxalin-5-yl or 1,2-dihydroisoquinoline-8-yl.

19. (Previously presented) A compound according to claim 17 wherein R¹ is H, methoxy, methyl, cyano or halogen and R^{1a} is H.

20. (Previously presented) A compound according to claim 17 wherein R³ is hydrogen; optionally substituted hydroxy; optionally substituted amino; halogen; (C₁₋₄)alkoxycarbonyl; CONH₂; 1-hydroxyalkyl; CH₂CO₂H; CH₂CONH₂; -CONHCH₂CONH₂; 1,2-dihydroxyalkyl; CH₂CN; 2-oxo-oxazolidin-5-yl; or 2-oxo-oxazolidin-5-yl(C₁₋₄alkyl).

21. (Previously presented) A compound according to claim 17 wherein n is 0 and A and B are both CH₂, A is CHO_H and B is CH₂ or A is NH and B is CO.

22. (Previously presented) A compound according to claim 17 wherein -U- is -CH₂-.

23. (Previously presented) A compound according to claim 17 wherein Y² has a group S bonded to X⁵ and a group NHCO bonded via N to to X³.

24. (Previously presented) A compound according to claim 17 wherein R⁵ is 3-oxo-3,4-dihydro-2H-pyrido[3,2-b][1,4]thiazin-6-yl.

25. (Currently amended) A compound ~~according to claim 17~~ selected from:
6-((3R,4S)-3-Fluoro-1-[(R)-2-hydroxy-2-(2-methoxy-quinolin-8-yl)-ethyl]-piperidin-4-ylamino}-methyl)-4H-pyrido[3,2-b][1,4]thiazin-3-one;
6-((3S,4R)-3-Fluoro-1-[(R)-2-hydroxy-2-(2-methoxy-quinolin-8-yl)-ethyl]-piperidin-4-ylamino}-methyl)-4H-pyrido[3,2-b][1,4]thiazin-3-one;
6-((3R,4R)-3-Hydroxy-1-[(R)-2-hydroxy-2-(2-methoxy-quinolin-8-yl)-ethyl]-piperidin-4-ylamino}-methyl)-4H-pyrido[3,2-b][1,4]thiazin-3-one;

6-{{(3S,4S)-3-Hydroxy-1-[(R)-2-hydroxy-2-(2-methoxy-quinolin-8-yl)-ethyl]-piperidin-4-ylamino}-methyl}-4H-pyrido[3,2-b][1,4]thiazin-3-one;
6-{{(3R,4S)-1-[2-(2,3-Dihydro-[1,4]dioxine[2,3-f]quinolin-10-yl)-ethyl]-3-fluoro-piperidin-4-ylamino}-methyl}-4H-pyrido[3,2-b][1,4]thiazin-3-one;
6-{{(1-{{(2R/S)-2-hydroxy-2-[3-(methyloxy)-5-quinoxalinyl]ethyl}-4-piperidinyl}amino}methyl}-2H-pyrido[3,2-b][1,4]thiazin-3(4H)-one;
6-{{(1-[2-(4-quinoliny)ethyl]-4-piperidinyl}amino)methyl}-2H-pyrido[3,2-b][1,4]thiazin-3(4H)-one;
4-[2-(3-hydroxy-4-{{(3-oxo-3,4-dihydro-2H-pyrido[3,2-b][1,4]thiazin-6-yl)methyl}amino}-1-piperidinyl)ethyl]-6-quinolinecarbonitrile (isomer E2); and
4-[2-(3-hydroxy-4-{{(3-oxo-3,4-dihydro-2H-pyrido[3,2-b][1,4]thiazin-6-yl)methyl}amino}-1-piperidinyl)ethyl]-6-quinolinecarbonitrile (E1 isomer);
or a pharmaceutically acceptable derivative thereof.

26. (Currently amended) A method of treatment of bacterial infections in mammals, particularly in man, which method comprises the administration to a mammal in need of such treatment an effective amount of a compound according to claim 17.

27. (Previously presented) A pharmaceutical composition comprising a compound according to claim 17, and a pharmaceutically acceptable carrier.

28. Canceled.

29. (New) A compound according to claim 17 wherein R^A is unsubstituted quinolin-4-yl, or quinolin-4-yl substituted by a cyano in the 6-position.

30. (New) A compound according to claim 17 wherein R^A is optionally substituted quinolin-8-yl.

31. (New) A compound according to claim 17 wherein R^A is optionally substituted quinoxalin-5-yl.

32. (New) A method of treatment of bacterial infections in mammals, particularly in man, which method comprises the administration to a mammal in need of such treatment an effective amount of a compound according to claim 25.

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33. (New) A pharmaceutical composition comprising a compound according to claim 25, and a pharmaceutically acceptable carrier.